# EARTH RADIATION BUDGET SATELLITE (ERBS) TOTAL SOLAR IRRADIANCE MEASUREMENTS
## OCTOBER 1984 THROUGH JUNE 2000


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From 1984 to the present, total solar irradiance (TSI) values were obtained from the solar monitor on the Earth Radiation Budget Satellite (ERBS) nonscanner instrument. The ERBS solar monitor is an active cavity radiometer similar in design to the Active Cavity Radiometer Irradiance Monitors (ACRIM) which have flown on the NASA Solar Maximum Mission (SMM), Upper Atmosphere Research Satellite (UARS), and Atmospheric Laboratory for Applications and Science (ATLAS) spacecraft missions. The ERBS satellite was placed into orbit on October 5, 1984 and the solar monitor is still operating properly, after almost 15 years. In Figure 1 and in the data tables, the ERBS solar monitor time series covers the period from October 25, 1984 through June 28, 2000. The measurement precision is approximately 0.01 percent while the accuracy is 0.2 percent. The ERBS data reduction model is described in considerable detail in Reference 1. In Reference 2, analyses of the ERBS time series were presented as well as comparisons of the ERBS time series with those of the ACRIM Solar Maximum Mission (SMM) and Nimbus 7 Earth Radiation Budget (ERB) Channel 10c pyrheliometers. Recently, Lee *et al.* (1999) and Lee *et al.* (2000) present analyses of the enclosed 1984-2000 ERBS TSI values, and comparisons among the ERBS values and those values from the Upper Atmosphere Research Satellite (UARS), Solar and Heliospheric Observatory (SOHO)/Variability of solar IRradiance and Gravity Oscillations (VIRGO), and Space Shuttle Atmospheric Laboratory for Applications and Science (ATLAS) Solar Constant (SOLCON) Spacecraft missions.

In the archive file (see www.ngdc.noaa.gov/stp), the format for total solar irradiance (TSI) values is:

| | |
|---|---|
| Column 1: | Calibration date - year/month/day |
| Column 2: | Measurement time (universal) - hour:min:sec |
| Column 3: | Total Solar Irradiance (Watts/meters squared) at 1 AU<br>Corrected for Off-axis viewing and normalized to<br>Astronomical Almanac Earth-Sun Distance tables |
| Column 4: | Standard Deviation of averaged samples (Watts/meters squared)<br>0.0 indicates 1 sample or very close instantaneous samples |

In Figure 1, the individual total solar irradiance values represent orbital averages of the instantaneous measurements which are corrected for the angle between the instrument optical axis and the Sun and which are normalized to the mean Earth/Sun distance. At least once every 14 days, the Sun is observed by the monitor for several 64-second measurement intervals. Each interval is separated into two 32-second periods. During the first period, the Sun drifts across the 9.2-degree unocculted field of view, and its radiation field is measured. During the second period, a low-emittance shutter, representative of a near-zero irradiance source, is cycled into the field of view, and the low irradiance from the back of the shutter is measured. The resulting averaged measurements from the several 64-second time intervals are used to define the irradiance, using the algorithms that are described in Reference 1. Typically, two to eleven values of the irradiance are determined during an orbit. Considering that these irradiance values are derived typically during a single orbit for a few minutes, the averaged irradiance values represent an almost instantaneous level, and not a daily average.

# ERBS SOLAR MONITOR

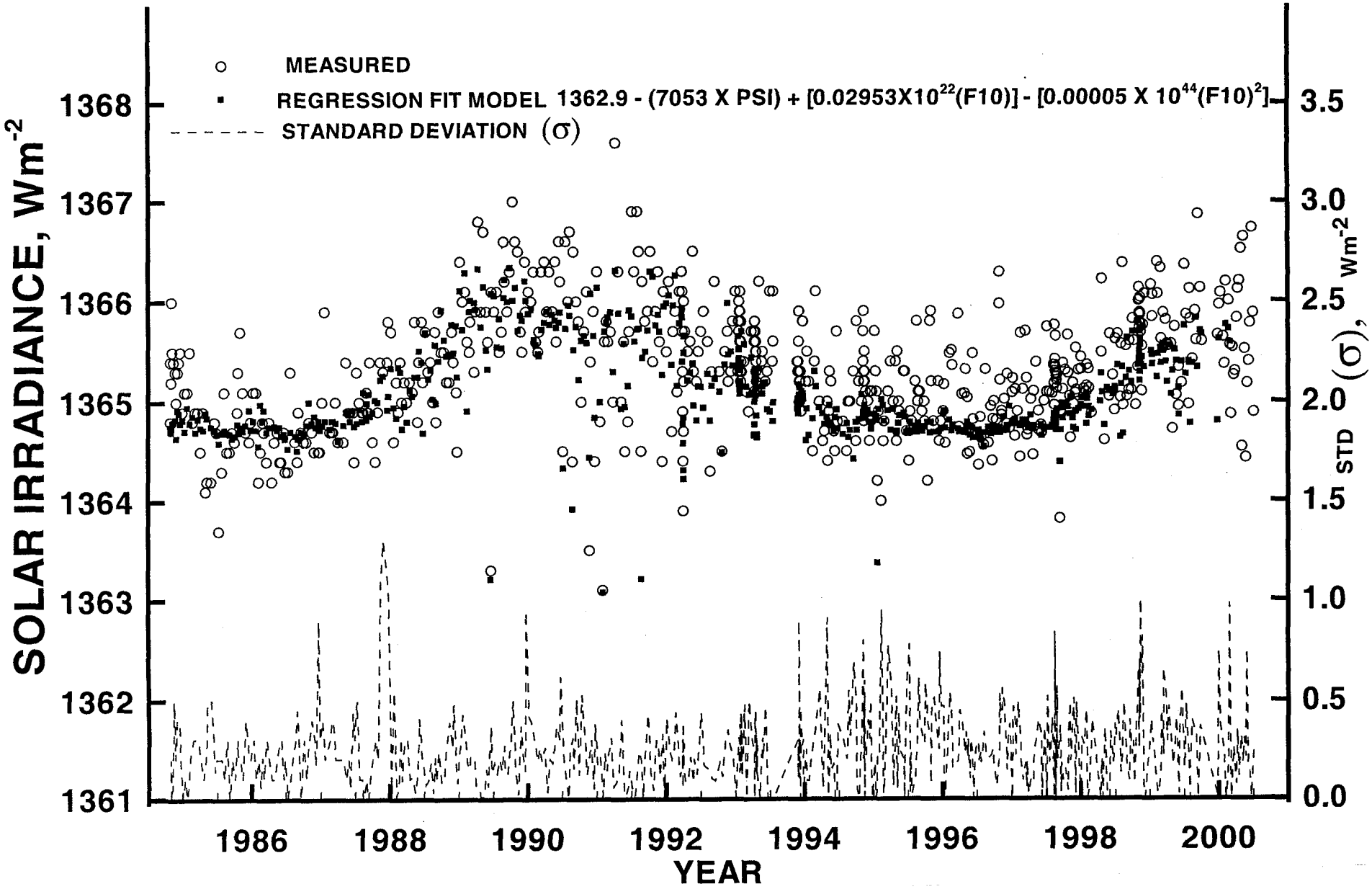


Fig. 1. Earth Radiation Budget Satellite (ERBS) total solar irradiance values and the standard deviations for each value with an empirical model fit represented by solid line.

Between 1984 and 1993, the solar monitor was operated continuously with the exception of the July 2-3, 1987, September 4-9, 1992, and July 2-3, 1993 when spacecraft attitude control or battery cell failure problems caused the monitor to be turned off. Between July 18, 1993 and November 21, 1993, the monitor was turned off because the spacecraft battery system and the flight operations procedures could not provide sufficient power to all of the spacecraft sensors. Therefore, there are no data available for this period. The 14-day measurement schedule was resumed after November 22, 1993 when flight procedures were revised to provide sufficient power to the monitor. Beyond Feb. 28, 1998, we have processed with the exception of a few days, all of the 1998 ERBS TSI measurements. During March 1998, no ERBS TSI measurements were obtained because the ERBS/ERBE telemetry dedicated to earth and solar radiation measurement failed. The April through December 1998, TSI measurements were relayed in a different format using the remaining ERBS/SAGE telemetry system. ERBS TSI measurements are also not available for later December 1998 and early January 1999 because the ERBS spacecraft had another battery cell failure. The TSI measurements started again on January 6, 1999. Also, between September 1999 and December 1999 no calibrations were done due to a failure in the elevation gimbal of the non-scanner instrument. Solar measurements were resumed for the solar monitor only December 22, 1999 using a different command sequence.

In Table 1, the solar monitor power-on days in 1993 through December 1999 are presented. In the data tables and in Figure 1, the measurement standard deviations (STD) increased significantly when the power was turned off for 1 to 8 day [an average of 4 days] periods every 22 to 40 days [an average of 30 days].

In Figure 1, the ERBS irradiance values are compared with an empirical regression fit, which serves as a quality assurance diagnostic tool. The fit was derived from least squares analyses between the ERBS irradiances, photometric sunspot index (PSI), and 10.7-cm solar flux (F10), using March 1985 through August 1989 values. PSI is a proxy for irradiance decreases that are caused by the presence of large groups and numbers of sunspots. F10 is a proxy for irradiance brightening which is caused by the presence of faculae. Lee et al. (1995) describes the derivation of the regression fit.

Specialized irradiance measurement missions were conducted during March 23, 1992 through April 2, 1992, January 16, 1993 through January 30, 1993, April 6, 1993 through April 22, 1993, November 4, 1994 through December 13, 1994, August 8, 1997 through August 25, 1997 and October 29, 1998 through November 11, 1998. The specialized missions included increased measurement opportunities over three to six orbits each day compared to the typical single orbit measurements. The missions were extended to as much as 10 consecutive days of measurements.

## References

[1] R. B. Lee III, B. R. Barkstrom, and R. D. Cess, "Characteristics of the Earth Radiation Budget Experiment Solar Monitors,"*Applied Optics*, **26,** No. 15, pp. 3090-3096, 1987.

[2] R. B. Lee III, M. A. Gibson, R. S. Wilson, S. Thomas, "Long-term Total Solar Irradiance Variability During Sunspot Cycle 22,"*Journal of Geophysical Research*, **100**, No. A2, pp. 1667-1675, February 1, 1995.

[3] Robert B. Lee III, Robert S. Wilson, K. J. Priestley, A. Al-Hajjah, J. Paden, D. K. Pandey, and S. Thomas, "1978-1998 Total Solar Irradiance Variability Trends," Proceedings of 10th Conference on Atmospheric Radiation [American Meteorological Society, Madison, WI, June 28 - July 2, 1999], pp. 84-287.

[4] Robert B. Lee III, Robert S. Wilson, K. J. Priestley, A. Al-Hajjah, J. Paden, D. K. Pandey, and S. Thomas, "1978-1998 Long-term Total Solar Irradiance (TSI) Variability Based Upon 1978-2000, spacecraft Measurements," Proceedings of International Radiation Symposium (IRS 2000), Session D. Earth Radiation Budget, Saint Petersburg, Russia, July 24-29, 2000, Paper D9.

# TABLE 1. ERBS Nonscanner Instrument Days of Operation up to Dec. 29, 1999

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Jun 93 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | |
| Jul 93 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | | | | | | | | |
| Aug 93 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sep 93 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Oct 93 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nov 93 | | | | | | | | | | | | | | | | | | | | | | x | x | x | x | x | x | x | x | x | |
| Dec 93 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Jan 94 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | | | | | | x | | x | x | x | x | x | x | x | x |
| Feb 94 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | | | | x | x | | | |
| Mar 94 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | | | |
| Apr 94 | | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | |
| May 94 | x | | | | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Jun 94 | x | x | x | x | x | x | x | x | x | x | | | | | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | |
| Jul 94 | x | x | x | x | x | x | x | x | x | x | x | | | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Aug 94 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | | | | | x | x | x | x | x | x |
| Sep 94 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | | | | | x | |
| Oct 94 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | |
| Nov 94 | | | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | |
| Dec 94 | x | x | x | x | x | x | x | x | x | x | x | | | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Jan 95 | x | x | x | x | x | x | x | x | x | | | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Feb 95 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | | | | x | x | x | x | x | x | | | |
| Mar 95 | x | | | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | | | x | x | x |
| Apr 95 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | | |
| May 95 | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Jun 95 | x | x | x | x | x | x | x | x | x | | | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | |
| Jul 95 | x | x | x | x | x | x | x | x | x | x | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | |
| Aug 95 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | x | x | x | x | x | x | x | x | x | x |
| Sep 95 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | | x | x | x | x | | | |
| Oct 95 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | | x |
| Nov 95 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | |
| Dec 95 | x | x | x | x | x | x | x | x | x | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Jan 96 | x | x | x | x | x | x | | | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Feb 96 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | | | x | x | x | x | x | x | x | x | x | x | | | |
| Mar 96 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | | x | x | x | x | x | x | x |
| Apr 96 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | | x | x | x | |
| May 96 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Jun 96 | x | x | x | x | x | | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | |
| Jul 96 | x | x | x | x | x | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Aug 96 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Sep 96 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | | | x | x | x | x | x | x | x | x | x | | |
| Oct 96 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | x | x | x | x | x |
| Nov 96 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | |
| Dec 96 | x | x | x | x | x | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Jan 97 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Feb 97 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | | |
| Mar 97 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Apr 97 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | |
| May 97 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Jun 97 | x | x | x | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | |
| Jul 97 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Aug 97 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Sep 97 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | |
| Oct 97 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Nov 97 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | |
| Dec 97 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Jan 98 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Feb 98 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | | |
| Mar 98 | x | x | x | x | x | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Apr 98 | | | | | | | | | | x | x | x | x | x | x | x | x | | | x | x | x | x | x | x | x | x | x | x | x | |
| May 98 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | | x |
| Jun 98 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | x | x | |
| Jul 98 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Aug 98 | x | x | x | x | x | x | x | x | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Sep 98 | x | x | x | x | x | x | x | x | x | x | x | | x | x | x | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | |
| Oct 98 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Nov 98 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | | x | x | x | |
| Dec 98 | x | x | x | x | x | x | x | x | | | | | | | | | | | | | | | | | | | | | | | |
| Jan 99 | | | | | x | x | x | x | x | x | x | x | x | x | x | x | | | | | | | | | | | | | | | |
| Feb 99 | | | | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | | |
| Mar 99 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Apr 99 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | |
| May 99 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Jun 99 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | |
| Jul 99 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Aug 99 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Sep 99 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | |
| Oct 99 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Nov 99 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | |
| Dec 99 | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |

# 1984 DAILY INSTANTANEOUS SOLAR IRRADIANCE*

NASA Langley — Earth Radiation Budget Satellite (ERBS) — Units = W/m2

| Day | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1366.0 | --- |
| 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.3 |
| 4 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.4 | --- |
| 6 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.4 |
| 11 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.3 | --- |
| 13 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.5 |
| 18 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 19 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.3 | --- |
| 21 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 22 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 23 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 24 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 25 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1364.8 | --- | --- |
| 26 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.4 | 1364.8 | --- |
| 27 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 28 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1364.9 |
| 29 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.2 | --- | --- |
| 30 | --- | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 31 | --- | | --- | | --- | | --- | --- | | --- | | --- |

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# 1985 DAILY INSTANTANEOUS SOLAR IRRADIANCE*

NASA Langley — Earth Radiation Budget Satellite (ERBS) — Units = W/m2

| Day | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | --- | --- | --- | 1364.1 | --- | --- | --- | --- | --- | --- | --- |
| 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1364.6 | --- | --- |
| 3 | --- | --- | --- | 1364.5 | --- | --- | --- | --- | --- | --- | --- | --- |
| 4 | --- | --- | --- | --- | --- | --- | --- | --- | 1364.5 | --- | --- | --- |
| 5 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6 | --- | 1365.5 | 1364.9 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7 | --- | --- | --- | --- | --- | --- | --- | 1365.1 | --- | --- | --- | --- |
| 8 | --- | --- | --- | --- | 1364.2 | --- | --- | --- | --- | --- | --- | --- |
| 9 | 1365.1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10 | --- | --- | --- | --- | --- | --- | 1363.7 | --- | --- | --- | --- | --- |
| 11 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.1 | --- |
| 14 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1364.9 | --- | --- |
| 17 | --- | --- | --- | 1364.9 | --- | --- | --- | --- | --- | --- | --- | --- |
| 18 | --- | --- | --- | --- | --- | 1364.8 | --- | --- | 1364.7 | --- | --- | 1364.6 |
| 19 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20 | --- | 1364.8 | 1364.9 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 21 | --- | --- | --- | --- | --- | --- | --- | 1364.5 | --- | 1365.3 | --- | --- |
| 22 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 23 | 1365.1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 24 | --- | --- | --- | --- | --- | --- | 1364.3 | --- | --- | --- | --- | --- |
| 25 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1364.8 |
| 26 | --- | --- | --- | --- | --- | 1364.7 | --- | --- | --- | --- | --- | --- |
| 27 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1364.7 | --- |
| 28 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 29 | --- | | --- | --- | 1364.2 | --- | --- | --- | --- | --- | --- | --- |
| 30 | --- | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 31 | --- | | --- | | --- | | --- | --- | | 1365.7 | | --- |

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# 1986 DAILY INSTANTANEOUS SOLAR IRRADIANCE*

NASA Langley — Earth Radiation Budget Satellite (ERBS) — Units = W/m2

| Day | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1364.6 | --- | --- |
| 2 | --- | --- | --- | 1364.8 | --- | --- | --- | --- | --- | --- | --- | --- |
| 3 | --- | --- | --- | --- | --- | --- | --- | --- | 1364.9 | --- | --- | --- |
| 4 | --- | --- | --- | --- | --- | 1364.4 | --- | --- | --- | --- | --- | 1364.8 |
| 5 | --- | 1364.2 | 1364.7 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 1365.1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9 | --- | --- | --- | --- | --- | --- | 1364.3 | --- | --- | --- | --- | --- |
| 10 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1364.7 | --- |
| 13 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14 | --- | --- | --- | --- | 1364.7 | --- | --- | --- | --- | --- | --- | --- |
| 15 | --- | 1364.5 | --- | --- | --- | --- | --- | --- | --- | 1364.6 | --- | --- |
| 16 | --- | --- | --- | 1364.2 | --- | --- | --- | --- | --- | --- | --- | --- |
| 17 | --- | --- | --- | --- | --- | --- | --- | 1364.6 | 1364.7 | --- | --- | --- |
| 18 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1364.5 |
| 19 | --- | --- | 1364.4 | --- | --- | 1364.7 | --- | --- | --- | --- | --- | --- |
| 20 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 21 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 22 | 1365.1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 23 | --- | --- | --- | --- | --- | --- | 1365.3 | --- | --- | --- | --- | --- |
| 24 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1364.5 |
| 25 | --- | --- | --- | --- | --- | 1364.3 | --- | --- | --- | --- | --- | --- |
| 26 | --- | 1364.8 | --- | --- | --- | --- | --- | --- | --- | --- | 1364.5 | --- |
| 27 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 28 | --- | --- | --- | --- | 1364.4 | --- | --- | 1364.4 | --- | --- | --- | --- |
| 29 | --- | | --- | --- | --- | --- | --- | --- | --- | 1364.8 | --- | --- |
| 30 | --- | | --- | 1364.6 | --- | --- | --- | --- | --- | --- | --- | --- |
| 31 | --- | | --- | | --- | | --- | --- | | --- | | --- |

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# 1987 DAILY INSTANTANEOUS SOLAR IRRADIANCE*

NASA Langley — Earth Radiation Budget Satellite (ERBS) — Units = W/m2

| Day | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | --- | --- | 1364.6 | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | --- | --- | --- | --- | --- | --- | --- | --- | 1364.9 | --- | --- | --- |
| 3 | --- | --- | --- | --- | --- | 1364.9 | --- | --- | --- | --- | --- | --- |
| 4 | --- | --- | 1364.7 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5 | --- | --- | --- | --- | --- | --- | --- | 1364.9 | --- | --- | --- | --- |
| 6 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7 | 1365.0 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | --- | --- | --- | --- | --- | --- | 1365.3 | --- | --- | --- | --- | --- |
| 9 | --- | --- | --- | --- | --- | --- | --- | --- | 1364.9 | --- | --- | --- |
| 10 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.4 | --- |
| 12 | --- | --- | --- | --- | --- | --- | --- | 1364.8 | --- | --- | --- | --- |
| 13 | --- | --- | --- | --- | 1365.4 | --- | --- | --- | --- | --- | --- | --- |
| 14 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1364.4 | --- | --- |
| 15 | --- | 1364.7 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16 | --- | --- | --- | --- | --- | --- | --- | --- | 1365.4 | --- | --- | --- |
| 17 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18 | --- | --- | 1365.0 | --- | --- | 1364.9 | --- | --- | --- | --- | --- | 1365.4 |
| 19 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 21 | 1365.9 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 22 | --- | --- | --- | --- | --- | --- | 1365.0 | --- | --- | --- | --- | --- |
| 23 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.8 |
| 24 | --- | --- | --- | --- | --- | 1364.4 | --- | --- | --- | --- | --- | --- |
| 25 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.3 | --- |
| 26 | --- | 1364.7 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 27 | --- | --- | --- | --- | 1364.9 | --- | --- | --- | --- | --- | --- | --- |
| 28 | --- | --- | --- | --- | --- | --- | --- | 1365.1 | --- | 1364.9 | --- | --- |
| 29 | --- | | --- | 1364.6 | --- | --- | --- | --- | --- | --- | --- | --- |
| 30 | --- | | --- | --- | --- | --- | --- | --- | 1364.6 | --- | --- | --- |
| 31 | --- | | --- | | --- | | --- | --- | | --- | | --- |

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# 1988 DAILY INSTANTANEOUS SOLAR IRRADIANCE*

NASA Langley — Earth Radiation Budget Satellite (ERBS) — Units = W/m2

| Day | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | --- | --- | 1365.0 | --- | --- | 1365.4 | --- | --- | --- | --- | --- | 1365.4 |
| 3 | --- | 1365.2 | --- | --- | --- | --- | --- | 1365.4 | --- | --- | --- | --- |
| 4 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6 | 1365.7 | --- | --- | --- | --- | --- | 1365.7 | --- | --- | --- | --- | --- |
| 7 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.2 | --- |
| 10 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11 | --- | --- | --- | --- | 1365.8 | --- | --- | --- | --- | --- | --- | --- |
| 12 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.5 | --- | --- |
| 13 | --- | --- | --- | 1365.2 | --- | --- | --- | --- | --- | --- | --- | --- |
| 14 | --- | 1364.9 | --- | --- | --- | --- | --- | --- | 1365.9 | --- | --- | --- |
| 15 | --- | --- | --- | --- | --- | --- | --- | 1365.0 | --- | --- | --- | --- |
| 16 | --- | --- | 1365.2 | --- | --- | --- | --- | --- | --- | --- | --- | 1365.1 |
| 17 | --- | --- | --- | --- | --- | 1365.8 | --- | --- | --- | --- | --- | --- |
| 18 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 19 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20 | 1364.6 | --- | --- | --- | --- | --- | 1365.3 | --- | --- | --- | --- | --- |
| 21 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1364.5 |
| 22 | --- | --- | --- | --- | --- | 1365.2 | --- | --- | --- | --- | --- | --- |
| 23 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.7 | --- |
| 24 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 25 | --- | 1365.4 | --- | --- | 1364.8 | --- | --- | --- | --- | --- | --- | --- |
| 26 | --- | --- | --- | --- | --- | --- | --- | 1365.7 | --- | 1365.2 | --- | --- |
| 27 | --- | --- | --- | 1365.1 | --- | --- | --- | --- | --- | --- | --- | --- |
| 28 | --- | --- | --- | --- | --- | --- | --- | --- | 1365.5 | --- | --- | --- |
| 29 | --- | --- | 1365.0 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 30 | --- | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 31 | --- | | --- | | --- | | --- | 1364.8 | | --- | | --- |

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NASA Langley — Earth Radiation Budget Satellite (ERBS) — Units = W/m2

| Day | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | 1366.1 | 1365.8 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | --- | --- | --- | --- | --- | 1365.6 | --- | --- | --- | --- | --- | --- |
| 3 | --- | --- | --- | --- | --- | --- | --- | 1365.5 | --- | --- | --- | --- |
| 4 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5 | 1366.4 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6 | --- | --- | --- | --- | --- | --- | 1365.9 | --- | --- | --- | --- | --- |
| 7 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1366.5 | --- |
| 9 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10 | --- | --- | --- | --- | 1366.7 | --- | --- | --- | --- | --- | --- | --- |
| 11 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1367.0 | --- | --- |
| 12 | --- | 1365.6 | --- | 1366.8 | --- | --- | --- | --- | --- | --- | --- | --- |
| 13 | --- | --- | --- | --- | --- | --- | --- | --- | 1365.9 | --- | --- | --- |
| 14 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15 | --- | --- | --- | --- | --- | 1363.3 | --- | 1365.7 | --- | --- | --- | 1366.4 |
| 16 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18 | 1366.0 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 19 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20 | --- | --- | --- | --- | --- | --- | 1366.1 | --- | --- | --- | --- | 1365.9 |
| 21 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 22 | --- | --- | 1365.3 | --- | --- | 1366.1 | --- | --- | --- | --- | --- | --- |
| 23 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.7 | --- |
| 24 | --- | 1365.5 | --- | --- | 1365.9 | --- | --- | --- | --- | --- | --- | --- |
| 25 | --- | --- | --- | --- | --- | --- | --- | 1366.6 | --- | 1366.6 | --- | --- |
| 26 | --- | --- | --- | 1365.9 | --- | --- | --- | --- | --- | --- | --- | --- |
| 27 | --- | --- | --- | --- | --- | --- | --- | --- | 1366.3 | --- | --- | --- |
| 28 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 29 | --- | | 1365.9 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 30 | --- | | --- | --- | --- | --- | --- | 1366.2 | --- | --- | 1365.5 | --- |
| 31 | --- | | --- | | --- | | --- | --- | | --- | | --- |

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# 1990 DAILY INSTANTANEOUS SOLAR IRRADIANCE*

NASA Langley — Earth Radiation Budget Satellite (ERBS) — Units = W/m2

| Day | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | --- | --- | --- | --- | --- | --- | 1366.0 | --- | --- | --- | --- |
| 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3 | 1366.1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4 | --- | --- | --- | --- | --- | --- | 1364.5 | --- | --- | --- | --- | --- |
| 5 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1366.1 | --- |
| 8 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9 | --- | --- | --- | --- | 1365.9 | --- | --- | --- | --- | --- | --- | --- |
| 10 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.0 | --- | --- |
| 11 | --- | 1365.6 | --- | 1365.9 | --- | --- | --- | 1366.7 | --- | --- | --- | --- |
| 12 | --- | --- | --- | --- | --- | --- | --- | --- | 1366.0 | --- | --- | --- |
| 13 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.9 |
| 14 | --- | --- | 1366.2 | --- | --- | 1366.6 | --- | --- | --- | --- | --- | --- |
| 15 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17 | 1366.0 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18 | --- | --- | --- | --- | --- | --- | 1366.6 | --- | --- | --- | --- | --- |
| 19 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1364.4 |
| 20 | --- | --- | --- | --- | --- | 1366.3 | --- | --- | --- | --- | --- | --- |
| 21 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1363.6 | --- |
| 22 | --- | 1365.5 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 23 | --- | --- | --- | --- | --- | --- | --- | 1364.4 | --- | --- | --- | --- |
| 24 | --- | --- | --- | --- | 1366.4 | --- | --- | --- | --- | 1365.7 | --- | --- |
| 25 | --- | --- | --- | 1366.3 | --- | --- | --- | --- | --- | --- | --- | --- |
| 26 | --- | --- | --- | --- | --- | --- | --- | --- | 1365.8 | --- | --- | --- |
| 27 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 28 | --- | 1365.7 | 1366.4 | --- | --- | --- | --- | --- | --- | --- | 1365.4 | --- |
| 29 | --- | | --- | --- | --- | --- | --- | 1366.5 | --- | --- | --- | --- |
| 30 | --- | | --- | --- | 1365.6 | --- | --- | --- | --- | --- | --- | --- |
| 31 | 1366.3 | | --- | | --- | | --- | --- | | --- | | --- |

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# 1991 DAILY INSTANTANEOUS SOLAR IRRADIANCE*

NASA Langley — Earth Radiation Budget Satellite (ERBS) — Units = W/m2

| Day | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | 1366.3 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3 | --- | --- | --- | --- | --- | --- | 1366.9 | --- | --- | --- | --- | --- |
| 4 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.8 | --- |
| 7 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | --- | --- | --- | --- | 1365.0 | --- | --- | --- | --- | --- | --- | --- |
| 9 | --- | 1365.6 | --- | --- | --- | --- | --- | 1366.5 | --- | 1366.5 | --- | --- |
| 10 | --- | --- | --- | 1367.6 | --- | --- | --- | --- | --- | --- | --- | 1364.4 |
| 11 | --- | --- | --- | --- | --- | --- | --- | --- | 1365.8 | --- | --- | --- |
| 12 | --- | --- | --- | --- | --- | 1364.8 | --- | --- | --- | --- | --- | --- |
| 13 | --- | --- | 1365.7 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16 | 1364.8 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17 | --- | --- | --- | --- | --- | --- | 1366.3 | --- | --- | --- | --- | --- |
| 18 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1366.1 |
| 19 | --- | --- | --- | --- | --- | 1365.7 | --- | --- | --- | --- | --- | --- |
| 20 | --- | 1365.8 | --- | --- | --- | --- | --- | --- | --- | --- | 1366.3 | --- |
| 21 | --- | --- | --- | --- | --- | --- | --- | 1364.5 | --- | --- | --- | --- |
| 22 | --- | --- | --- | --- | 1365.6 | --- | --- | --- | --- | --- | --- | --- |
| 23 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.4 | --- | --- |
| 24 | --- | --- | --- | 1366.3 | --- | --- | --- | --- | --- | --- | --- | --- |
| 25 | --- | --- | --- | --- | --- | --- | --- | --- | 1365.9 | --- | --- | --- |
| 26 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.6 | --- |
| 27 | --- | 1365.6 | 1365.0 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 28 | --- | --- | --- | --- | 1364.5 | --- | --- | 1366.2 | --- | --- | --- | --- |
| 29 | --- | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 30 | 1363.1 | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 31 | --- | | --- | | --- | | 1366.9 | --- | | --- | | --- |

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# 1992 DAILY INSTANTANEOUS SOLAR IRRADIANCE*

NASA Langley — Earth Radiation Budget Satellite (ERBS) — Units = W/m2

| Day | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1365.6 | --- | --- | 1365.4 | --- | --- | 1365.7 | --- | --- | --- | --- | --- |
| 2 | --- | --- | --- | 1366.0 | --- | --- | --- | --- | --- | --- | --- | --- |
| 3 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.3 | --- |
| 5 | --- | --- | --- | --- | --- | --- | --- | 1365.6 | --- | --- | --- | --- |
| 6 | --- | 1365.7 | --- | --- | 1365.8 | --- | --- | --- | --- | --- | --- | 1365.3 |
| 7 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.5 | --- | --- |
| 8 | --- | --- | --- | 1365.7 | --- | 1365.2 | --- | --- | --- | --- | --- | --- |
| 9 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11 | --- | --- | 1366.2 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12 | --- | --- | --- | --- | --- | --- | --- | --- | 1365.2 | --- | --- | --- |
| 13 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15 | 1366.2 | --- | --- | --- | --- | --- | 1365.9 | --- | --- | --- | --- | --- |
| 16 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.8 |
| 17 | --- | --- | --- | --- | --- | 1365.6 | --- | --- | --- | --- | --- | --- |
| 18 | --- | 1365.9 | --- | --- | --- | --- | --- | 1364.3 | --- | --- | 1365.7 | --- |
| 19 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20 | --- | --- | --- | --- | 1366.5 | --- | --- | --- | --- | --- | --- | --- |
| 21 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1364.5 | --- | --- |
| 22 | --- | --- | --- | 1365.5 | --- | --- | --- | --- | --- | --- | 1365.2 | --- |
| 23 | --- | --- | 1366.3 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 24 | --- | --- | 1365.8 | --- | 1365.3 | --- | --- | --- | --- | --- | --- | --- |
| 25 | --- | --- | 1366.2 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 26 | --- | 1365.1 | 1365.6 | --- | --- | --- | --- | 1366.2 | --- | --- | --- | --- |
| 27 | --- | --- | 1365.8 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 28 | --- | --- | 1365.2 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 29 | 1364.8 | --- | 1364.6 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 30 | --- | | 1364.2 | --- | --- | --- | --- | --- | --- | --- | --- | 1365.8 |
| 31 | --- | | 1364.9 | | --- | | --- | --- | | --- | | --- |

*Solar Irradiance: Instantaneous values are cosine-corrected for any off-axis positioning of the Sun in the telescope aperature.
All values are normalized to 1 astronomical unit.

# 1993 DAILY INSTANTANEOUS SOLAR IRRADIANCE*

NASA Langley — Earth Radiation Budget Satellite (ERBS) — Units = W/m2

| Day | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | 1365.3 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.0 |
| 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.2 |
| 3 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.0 |
| 4 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.3 |
| 5 | --- | --- | --- | --- | 1366.2 | 1365.2 | --- | --- | --- | --- | --- | 1365.2 |
| 6 | --- | --- | --- | 1365.7 | --- | --- | --- | --- | --- | --- | --- | 1365.0 |
| 7 | --- | --- | --- | 1365.1 | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | --- | --- | --- | 1365.6 | --- | --- | --- | --- | --- | --- | --- | 1365.3 |
| 9 | --- | --- | --- | 1365.7 | --- | --- | --- | --- | --- | --- | --- | --- |
| 10 | --- | --- | 1364.8 | 1365.7 | --- | --- | --- | --- | --- | --- | --- | --- |
| 11 | --- | --- | --- | 1365.8 | --- | --- | --- | --- | --- | --- | --- | --- |
| 12 | --- | --- | --- | 1365.8 | --- | --- | --- | --- | --- | --- | --- | --- |
| 13 | 1365.3 | --- | --- | 1365.7 | --- | --- | --- | --- | --- | --- | --- | 1364.9 |
| 14 | --- | 1365.4 | --- | 1365.6 | --- | --- | --- | --- | --- | --- | --- | --- |
| 15 | --- | --- | --- | 1365.5 | --- | --- | --- | --- | --- | --- | --- | --- |
| 16 | 1365.8 | --- | --- | 1365.1 | --- | 1365.3 | 1365.6 | --- | --- | --- | --- | --- |
| 17 | 1365.6 | --- | --- | 1365.5 | --- | --- | 1366.1 | --- | --- | --- | --- | --- |
| 18 | 1366.0 | --- | --- | 1365.3 | --- | --- | --- | --- | --- | --- | --- | --- |
| 19 | 1365.8 | --- | --- | 1365.4 | 1365.4 | --- | --- | --- | --- | --- | --- | --- |
| 20 | 1365.9 | --- | --- | 1365.2 | --- | --- | --- | --- | --- | --- | --- | 1365.8 |
| 21 | 1365.9 | --- | --- | 1365.3 | 1365.5 | --- | --- | --- | --- | --- | --- | --- |
| 22 | 1365.6 | --- | --- | 1365.1 | --- | --- | --- | --- | --- | --- | 1365.4 | 1365.8 |
| 23 | 1365.9 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.4 | --- |
| 24 | 1366.1 | 1365.1 | 1365.7 | --- | --- | --- | --- | --- | --- | --- | 1365.4 | --- |
| 25 | 1365.6 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.2 | --- |
| 26 | 1365.3 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.3 | --- |
| 27 | 1365.2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.4 | --- |
| 28 | 1365.6 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.6 | --- |
| 29 | 1365.8 | | --- | --- | --- | --- | --- | --- | --- | --- | 1365.9 | --- |
| 30 | 1365.4 | | --- | --- | --- | 1366.1 | --- | --- | --- | --- | 1365.9 | --- |
| 31 | --- | | --- | | --- | | --- | --- | | --- | | --- |

*Solar Irradiance: Instantaneous values are cosine-corrected for any off-axis positioning of the Sun in the telescope aperature. All values are normalized to 1 astronomical unit.

# 1994 DAILY INSTANTANEOUS SOLAR IRRADIANCE*

NASA Langley — Earth Radiation Budget Satellite (ERBS) — Units = W/m2

| Day | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | --- | --- | --- | 1364.4 | 1364.7 | --- | --- | --- | 1365.8 | --- | --- |
| 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4 | --- | --- | --- | 1364.6 | --- | --- | --- | --- | --- | --- | 1365.7 | --- |
| 5 | 1365.2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.4 | --- |
| 6 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.6 | --- |
| 7 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.9 | 1364.6 |
| 8 | --- | --- | --- | --- | 1364.9 | 1364.5 | --- | --- | --- | --- | 1364.8 | --- |
| 9 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.3 | --- |
| 10 | --- | --- | --- | --- | --- | --- | --- | 1364.5 | --- | --- | 1365.5 | --- |
| 11 | 1365.5 | 1364.5 | --- | --- | 1365.3 | --- | 1364.5 | --- | --- | --- | 1365.2 | 1365.1 |
| 12 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.2 | 1365.2 | --- |
| 13 | --- | --- | --- | 1364.7 | --- | --- | --- | --- | --- | --- | 1365.3 | --- |
| 14 | --- | --- | --- | --- | --- | --- | --- | --- | 1365.3 | --- | --- | --- |
| 15 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.1 | 1364.8 |
| 17 | --- | --- | 1365.0 | --- | --- | 1365.7 | --- | 1365.0 | --- | --- | --- | --- |
| 18 | --- | --- | --- | --- | 1365.2 | --- | --- | --- | --- | --- | --- | --- |
| 19 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20 | 1365.2 | --- | --- | --- | --- | --- | 1364.8 | --- | --- | --- | --- | --- |
| 21 | --- | 1365.4 | --- | --- | --- | --- | --- | 1364.5 | --- | --- | --- | 1365.1 |
| 22 | --- | --- | --- | --- | --- | 1364.8 | --- | --- | --- | --- | --- | --- |
| 23 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 24 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 25 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 26 | --- | --- | --- | --- | --- | --- | --- | 1365.0 | 1364.6 | 1365.0 | --- | --- |
| 27 | --- | 1366.0 | --- | 1365.0 | --- | --- | --- | --- | --- | --- | --- | --- |
| 28 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 29 | --- | | --- | --- | --- | --- | 1365.1 | --- | --- | --- | 1365.0 | --- |
| 30 | --- | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 31 | --- | | --- | | --- | | --- | 1364.5 | | --- | | --- |

*Solar Irradiance: Instantaneous values are cosine-corrected for any off-axis positioning of the Sun in the telescope aperature. All values are normalized to 1 astronomical unit.

# 1995 DAILY INSTANTANEOUS SOLAR IRRADIANCE*

NASA Langley — Earth Radiation Budget Satellite (ERBS) — Units = W/m2

| Day | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3 | --- | --- | --- | --- | 1365.5 | --- | --- | --- | --- | --- | --- | --- |
| 4 | 1365.7 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5 | --- | --- | --- | --- | --- | --- | 1364.4 | --- | --- | --- | --- | --- |
| 6 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7 | --- | --- | --- | --- | --- | 1365.3 | --- | 1365.2 | --- | --- | --- | 1365.2 |
| 8 | --- | 1364.0 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9 | 1365.3 | --- | --- | --- | --- | 1365.3 | 1364.6 | --- | --- | --- | --- | --- |
| 10 | --- | --- | --- | --- | 1365.0 | --- | --- | --- | --- | --- | --- | --- |
| 11 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1364.8 | --- | --- |
| 12 | --- | --- | --- | 1364.9 | --- | --- | 1364.9 | --- | --- | --- | 1364.8 | 1364.6 |
| 13 | --- | --- | --- | --- | --- | 1365.2 | --- | --- | 1364.7 | --- | --- | --- |
| 14 | 1365.0 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15 | --- | --- | 1365.0 | --- | 1364.9 | --- | --- | --- | --- | --- | --- | --- |
| 16 | --- | --- | --- | --- | --- | --- | --- | 1365.8 | --- | --- | --- | --- |
| 17 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18 | 1364.2 | 1364.5 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 19 | --- | --- | --- | --- | --- | --- | 1364.8 | --- | --- | --- | --- | --- |
| 20 | --- | --- | --- | --- | --- | --- | --- | 1365.0 | --- | --- | --- | 1364.8 |
| 21 | --- | --- | --- | --- | --- | 1364.7 | --- | --- | --- | --- | --- | --- |
| 22 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 23 | --- | 1364.8 | --- | --- | --- | --- | --- | 1365.1 | 1365.0 | --- | --- | --- |
| 24 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 25 | 1364.9 | --- | --- | --- | --- | --- | --- | --- | --- | 1365.8 | 1364.9 | --- |
| 26 | --- | --- | --- | 1365.4 | --- | --- | --- | --- | --- | --- | --- | --- |
| 27 | --- | --- | --- | --- | --- | --- | --- | --- | 1364.8 | --- | --- | --- |
| 28 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.8 | --- | --- |
| 29 | --- | | --- | 1364.6 | --- | --- | --- | --- | --- | --- | --- | --- |
| 30 | --- | | 1365.4 | --- | --- | --- | --- | 1365.1 | --- | --- | --- | --- |
| 31 | --- | | --- | | --- | | --- | --- | | 1365.2 | | --- |

*Solar Irradiance: Instantaneous values are cosine-corrected for any off-axis positioning of the Sun in the telescope aperature.
All values are normalized to 1 astronomical unit.

# 1996 DAILY INSTANTANEOUS SOLAR IRRADIANCE*

NASA Langley — Earth Radiation Budget Satellite (ERBS) — Units = W/m2

| Day | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3 | 1364.9 | --- | --- | --- | --- | --- | 1364.7 | 1364.6 | --- | --- | --- | --- |
| 4 | --- | 1365.5 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1364.8 |
| 5 | --- | --- | --- | --- | --- | 1365.5 | --- | --- | --- | --- | --- | --- |
| 6 | 1365.2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.0 | --- |
| 7 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.3 |
| 8 | --- | --- | --- | --- | 1365.0 | --- | 1364.4 | --- | --- | --- | 1365.0 | --- |
| 9 | --- | --- | --- | --- | --- | 1364.8 | --- | --- | --- | 1364.8 | --- | --- |
| 10 | --- | --- | --- | 1365.1 | 1364.5 | --- | --- | --- | --- | --- | --- | --- |
| 11 | --- | --- | --- | --- | --- | --- | --- | --- | 1365.0 | --- | --- | --- |
| 12 | 1364.6 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14 | --- | --- | --- | --- | --- | --- | --- | 1365.3 | --- | --- | --- | --- |
| 15 | --- | 1365.5 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17 | 1364.9 | --- | --- | --- | --- | --- | 1364.8 | --- | --- | --- | --- | --- |
| 18 | --- | --- | --- | --- | --- | --- | --- | --- | 1364.4 | --- | --- | 1364.7 |
| 19 | --- | --- | --- | --- | --- | 1364.7 | --- | --- | --- | --- | --- | --- |
| 20 | --- | 1365.4 | --- | --- | --- | --- | --- | --- | --- | --- | 1365.0 | --- |
| 21 | --- | --- | 1365.9 | --- | --- | --- | 1364.6 | --- | --- | --- | --- | --- |
| 22 | 1364.9 | --- | --- | --- | --- | --- | --- | --- | 1364.8 | --- | --- | --- |
| 23 | --- | --- | --- | --- | 1364.5 | --- | --- | --- | --- | 1366.0 | --- | --- |
| 24 | --- | --- | --- | 1365.1 | 1364.7 | --- | --- | --- | --- | --- | --- | --- |
| 25 | --- | --- | --- | --- | --- | --- | --- | --- | 1365.0 | 1366.3 | --- | --- |
| 26 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 27 | --- | --- | 1364.7 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 28 | --- | 1364.9 | --- | --- | --- | --- | --- | 1364.6 | --- | 1365.2 | --- | --- |
| 29 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 30 | --- | | --- | 1365.3 | --- | --- | --- | --- | --- | --- | --- | --- |
| 31 | --- | | --- | | --- | | --- | --- | | --- | | --- |

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# 1997 DAILY INSTANTANEOUS SOLAR IRRADIANCE*

NASA Langley — Earth Radiation Budget Satellite (ERBS) — Units = W/m2

| Day | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1365.1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | --- | --- | --- | --- | --- | 1364.8 | 1365.1 | --- | --- | --- | --- | 1365.5 |
| 3 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.1 |
| 4 | 1365.2 | --- | --- | --- | --- | --- | 1365.7 | --- | --- | --- | 1364.6 | --- |
| 5 | --- | --- | --- | --- | --- | 1364.7 | --- | --- | --- | --- | --- | --- |
| 6 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7 | --- | --- | --- | --- | 1365.4 | --- | --- | --- | --- | --- | --- | --- |
| 8 | --- | --- | --- | --- | --- | --- | --- | 1365.4 | --- | 1365.3 | --- | --- |
| 9 | --- | --- | --- | 1365.0 | --- | --- | --- | --- | --- | --- | --- | --- |
| 10 | --- | --- | --- | --- | --- | --- | --- | 1365.2 | 1363.8 | --- | --- | --- |
| 11 | --- | --- | --- | --- | --- | --- | --- | 1365.2 | --- | --- | --- | --- |
| 12 | --- | 1364.4 | 1365.7 | --- | --- | --- | --- | 1365.0 | --- | --- | --- | --- |
| 13 | --- | --- | --- | --- | --- | --- | --- | 1365.8 | --- | --- | --- | --- |
| 14 | --- | 1365.7 | --- | --- | --- | --- | --- | 1365.4 | 1364.9 | --- | --- | --- |
| 15 | 1364.6 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16 | --- | --- | --- | --- | --- | --- | 1365.1 | 1365.4 | --- | --- | --- | --- |
| 17 | 1365.1 | --- | --- | --- | --- | --- | --- | 1365.3 | 1364.9 | --- | 1365.2 | 1365.3 |
| 18 | --- | --- | 1365.2 | --- | --- | 1365.0 | --- | 1365.7 | --- | --- | --- | --- |
| 19 | --- | --- | --- | --- | 1364.7 | --- | --- | 1365.3 | --- | --- | --- | --- |
| 20 | --- | --- | 1364.7 | --- | --- | --- | --- | 1365.3 | --- | --- | 1365.0 | --- |
| 21 | --- | --- | --- | --- | 1364.9 | --- | --- | 1365.2 | --- | 1365.7 | --- | --- |
| 22 | --- | --- | --- | 1364.5 | --- | --- | --- | 1365.3 | --- | --- | --- | --- |
| 23 | --- | --- | --- | --- | --- | --- | --- | 1365.2 | --- | 1365.3 | --- | --- |
| 24 | --- | --- | --- | 1365.1 | --- | --- | --- | 1365.1 | 1365.1 | --- | --- | --- |
| 25 | --- | --- | --- | --- | --- | --- | --- | --- | 1365.4 | --- | --- | --- |
| 26 | --- | 1365.1 | 1364.7 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 27 | --- | --- | --- | --- | --- | --- | --- | 1365.3 | --- | --- | --- | --- |
| 28 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 29 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.4 |
| 30 | 1364.9 | | --- | --- | --- | --- | 1365.1 | --- | --- | --- | 1365.1 | --- |
| 31 | --- | | --- | | --- | | --- | --- | | 1365.0 | | 1365.3 |

*Solar Irradiance: Instantaneous values are cosine-corrected for any off-axis positioning of the Sun in the telescope aperature.
All values are normalized to 1 astronomical unit.

# 1998 DAILY INSTANTANEOUS SOLAR IRRADIANCE*

NASA Langley — Earth Radiation Budget Satellite (ERBS) — Units = W/m2

| Day | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | --- | --- | --- | --- | 1365.7 | --- | --- | --- | --- | --- | --- |
| 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.9 | 1366.0 |
| 3 | --- | --- | --- | --- | 1364.6 | --- | --- | --- | --- | --- | 1366.1 | --- |
| 4 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1366.0 | --- |
| 5 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.9 | --- |
| 6 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.7 | --- |
| 7 | --- | --- | --- | --- | --- | --- | --- | 1366.4 | --- | 1365.6 | 1365.8 | --- |
| 8 | --- | 1365.3 | --- | --- | --- | --- | --- | --- | --- | --- | 1365.9 | --- |
| 9 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1366.0 | --- |
| 10 | --- | 1365.1 | --- | --- | --- | --- | --- | --- | 1365.1 | --- | 1366.0 | --- |
| 11 | --- | --- | --- | --- | --- | --- | --- | 1365.0 | --- | --- | 1365.8 | --- |
| 12 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.7 | --- |
| 13 | 1365.1 | --- | --- | --- | --- | --- | 1365.7 | --- | 1365.6 | --- | --- | --- |
| 14 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16 | --- | --- | --- | --- | 1365.1 | --- | --- | --- | --- | 1365.0 | --- | --- |
| 17 | --- | --- | --- | 1365.9 | --- | 1365.3 | --- | --- | --- | --- | 1365.1 | --- |
| 18 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 19 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1365.4 | 1365.6 | --- |
| 20 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 21 | --- | --- | --- | 1366.2 | --- | --- | --- | --- | --- | 1365.8 | --- | --- |
| 22 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 23 | --- | --- | --- | --- | --- | --- | --- | --- | 1365.1 | --- | --- | --- |
| 24 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 25 | --- | 1364.9 | --- | --- | --- | --- | --- | --- | --- | --- | 1365.8 | --- |
| 26 | 1365.1 | --- | --- | --- | --- | --- | --- | 1365.6 | --- | --- | --- | --- |
| 27 | --- | --- | --- | --- | --- | 1364.9 | 1365.0 | --- | --- | --- | --- | --- |
| 28 | 1365.2 | --- | --- | --- | 1365.0 | --- | --- | --- | --- | --- | --- | --- |
| 29 | --- | | --- | --- | --- | --- | --- | --- | --- | 1365.3 | 1366.5 | --- |
| 30 | --- | | --- | --- | --- | 1365.6 | --- | --- | 1365.8 | --- | --- | --- |
| 31 | 1365.4 | | --- | | --- | | 1365.6 | 1365.0 | | 1366.0 | | --- |

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# 1999 DAILY INSTANTANEOUS SOLAR IRRADIANCE*

NASA Langley — Earth Radiation Budget Satellite (ERBS) — Units = W/m2

| Day | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | --- | --- | --- | --- | --- | 1365.3 | --- | --- | --- | --- | --- | --- |
| 3 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6 | 1366.2 | 1366.4 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7 | --- | --- | --- | 1365.6 | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | --- | --- | --- | --- | --- | --- | --- | --- | 1366.9 | --- | --- | --- |
| 9 | 1365.5 | --- | --- | --- | --- | --- | 1365.9 | --- | --- | --- | --- | --- |
| 10 | --- | 1366.1 | 1365.9 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11 | 1365.8 | --- | 1365.5 | --- | 1365.7 | --- | --- | 1365.4 | --- | --- | --- | --- |
| 12 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13 | 1366.1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16 | --- | --- | --- | --- | --- | 1365.2 | --- | --- | --- | --- | --- | --- |
| 17 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 19 | --- | --- | --- | --- | 1365.1 | --- | --- | --- | --- | --- | --- | --- |
| 20 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 21 | --- | --- | --- | 1365.6 | --- | --- | --- | --- | --- | --- | --- | --- |
| 22 | --- | --- | --- | --- | --- | --- | --- | --- | 1366.1 | --- | --- | 1365.7 |
| 23 | --- | --- | --- | --- | --- | --- | 1365.0 | --- | --- | --- | --- | --- |
| 24 | --- | 1366.3 | 1365.8 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 25 | --- | --- | --- | --- | --- | --- | --- | 1365.9 | --- | --- | --- | --- |
| 26 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 27 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 28 | --- | 1365.6 | --- | --- | --- | --- | 1366.1 | --- | --- | --- | --- | --- |
| 29 | --- | --- | --- | 1364.7 | --- | --- | --- | --- | --- | --- | --- | 1366.0 |
| 30 | --- | | --- | --- | --- | 1366.4 | --- | --- | 1365.6 | --- | --- | --- |
| 31 | --- | | 1365.6 | | 1365.0 | | 1365.8 | 1365.6 | | --- | | --- |

*Solar Irradiance: Instantaneous values are cosine-corrected for any off-axis positioning of the Sun in the telescope aperature. All values are normalized to 1 astronomical unit.

# 2000 DAILY INSTANTANEOUS SOLAR IRRADIANCE*

NASA Langley — Earth Radiation Budget Satellite (ERBS) — Units = W/m2

| Day | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | --- | 1364.9 | --- | --- | --- | | | | | | |
| 2 | --- | 1366.2 | --- | --- | --- | --- | | | | | | |
| 3 | --- | --- | --- | --- | 1366.6 | --- | | | | | | |
| 4 | --- | --- | --- | --- | --- | --- | | | | | | |
| 5 | 1366.1 | --- | --- | 1366.1 | --- | --- | | | | | | |
| 6 | --- | --- | --- | --- | --- | --- | | | | | | |
| 7 | --- | --- | --- | --- | --- | 1365.8 | | | | | | |
| 8 | --- | --- | 1365.5 | --- | --- | --- | | | | | | |
| 9 | --- | 1366.6 | --- | --- | --- | --- | | | | | | |
| 10 | --- | --- | --- | --- | 1365.5 | --- | | | | | | |
| 11 | --- | --- | --- | --- | --- | --- | | | | | | |
| 12 | --- | --- | --- | 1366.2 | --- | --- | | | | | | |
| 13 | --- | --- | --- | --- | --- | --- | | | | | | |
| 14 | --- | --- | --- | --- | --- | 1366.7 | | | | | | |
| 15 | --- | --- | 1365.3 | --- | --- | --- | | | | | | |
| 16 | --- | 1366.0 | --- | --- | --- | --- | | | | | | |
| 17 | --- | --- | --- | --- | 1364.4 | --- | | | | | | |
| 18 | --- | --- | --- | --- | --- | --- | | | | | | |
| 19 | 1365.6 | --- | --- | 1366.5 | --- | --- | | | | | | |
| 20 | --- | --- | --- | --- | --- | --- | | | | | | |
| 21 | --- | --- | --- | --- | --- | --- | | | | | | |
| 22 | --- | --- | 1365.3 | --- | --- | 1365.9 | | | | | | |
| 23 | --- | 1365.6 | --- | --- | --- | --- | | | | | | |
| 24 | --- | --- | --- | --- | 1365.2 | --- | | | | | | |
| 25 | --- | --- | --- | --- | --- | --- | | | | | | |
| 26 | 1365.4 | --- | --- | 1364.5 | --- | --- | | | | | | |
| 27 | --- | --- | --- | --- | --- | --- | | | | | | |
| 28 | --- | --- | --- | --- | --- | 1364.9 | | | | | | |
| 29 | --- | --- | 1365.8 | --- | --- | | | | | | | |
| 30 | --- | | --- | --- | --- | | | | | | | |
| 31 | --- | | --- | | 1365.4 | | | | | | | |

*Solar Irradiance: Instantaneous values are cosine-corrected for any off-axis positioning of the Sun in the telescope aperature.
All values are normalized to 1 astronomical unit.